



IR Applications

Volume 30, March 7, 2011

Using Advanced Tools, Techniques, and Methodologies

The Pursuit of Increased Learning: Coalescing Assessment Strategies at a Large Research University

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Abstract

Assessment drives significant change in higher education. Colleges and universities are being asked to (a) publish expected learning outcomes for each of their programs; (b) provide evidence that the expected learning outcomes are realized by students; and (c) demonstrate how such data collection and analyses lead to continuous improvement of student learning, the curriculum, and the university. This is a significant challenge, especially for large schools with many students.

This paper presents (a) a working yet evolving model of an institutional assessment and analysis plan; (b) obstacles and challenges associated with implementing the plan; (c) innovative strategies—some technological—employed to address the obstacles and challenges; (d) a collegewide application of a systems approach to assessment; and (e) lessons learned and future strategies. Institutional, collegewide, discipline-specific, and individual faculty perspectives to a systems approach of bridging assessment, learning outcomes, and accreditation will be presented. The importance of student involvement throughout the process is highlighted.

Brigham Young University (BYU) serves over 30,000 students across 11 colleges and 56 academic departments, offering over 400 degree-granting programs. During BYU's recent decennial regional accreditation, emphasis on assessment strategies and learning outcomes accountability was appropriately far reaching and has generated extensive response across the university community.

Introduction

On the surface, few would argue that the reason we have institutions of higher education is to facilitate learning. This sounds simple enough; however, pressure is surfacing from multiple directions, for instance, national educational entities,

regional accrediting bodies, discipline-specific specialized accrediting entities, funding agencies, and key stakeholders (students, employers, parents, institutional boards, etc.) for evidence of increased levels of learning to validate the very high costs of academia, most of which are on the rise. Due to these pressures, both internal and external to the institution, many institutions find themselves asking how to provide evidence of learning in a consistent, timely manner to satisfy these demands and to inform and influence a systematic and continuous process of improvement and change at the institution. The authors acknowledge that assessments that contribute to decision-making in all key performance areas of the institution are extensive and involve a variety of challenges and constraints. Assessment becomes especially challenging when consideration must be given to the place of assessments and reporting in the larger context of aligning institutional claims with outcomes projected for all performance areas of the campus (Kramer, Hanson, & Olsen, 2010).

Given the difficulties and challenges of assessment at the institutional level, an institutional assessment plan is absolutely necessary to accomplish the task of providing evidence that demonstrates learning and that also ensures decisions informed by these data positively promote and improve *student learning and development*—the core purpose of assessments in higher education. In addition, individual academic units and educational support units at the university must also develop their own assessment plans, however, the institutional plan may provide guidance for all entities. Such plans are integral to an institution's ability to inculcate a culture of assessment wherein unit- or program-level goals and objectives can be rolled up to the institutional level, thus assisting the validation of institutional core values and corresponding objectives. Assessment needs to be by design, not happenstance, or random coincidence. Simply put, he who fails to plan, plans to fail. Every unit on a campus, whether academic or educational support, has a genuine role in substantiating the degree to which the institution's mission is being achieved. A

well-designed institutional plan proactively makes such important connections and efforts.

This paper profiles Brigham Young University's (BYU) recent efforts in the quest for a deepened culture of assessment in the pursuit of increased learning and ongoing improvement by addressing the following:

- BYU's Institutional Assessment and Analysis Plan;
- Challenges and Strategies;
- Collegewide Application of a Systems Approach to Assessment; and
- Lessons Learned and Future Strategies.

While no panacea is offered for creating and managing an institutionwide assessment plan tailored to a university or college, the article does offer essential, established principles based on working models and assessment frameworks that have succeeded at BYU. In sum, this paper offers ideas on how to move towards a stronger, more congruent institutional assessment and analysis plan.

BYU'S Institutional Assessment and Analysis Plan

BYU serves over 30,000 students across 11 colleges and 56 academic departments, offering over 400 degree-granting programs. The work of establishing a universitywide assessment plan for such a large institution cannot be understated, but an institution-level assessment plan is not complete without ongoing assessment in its individual academic and educational support programs. Institution-level assessment is complementary to lower level (program, course, etc.) assessment and vice versa. As a result, many of the strategies discussed below were also undertaken to aid individual programs and departments in establishing their own assessment program.

Despite the wealth of information regarding BYU's specific strategic plan for assessment, the authors realize that strategic plans are as individual as the institutions that develop them. So, we do not make the assumption that all of the suggestions and strategies discussed will be applicable to all institutions, but should be taken in the context

of one's own institution or program. The plan presented is not intended to be the "model" for all institutions, but to generate thoughtful consideration of how other institutions may tackle comparable issues.

During BYU's recent decennial regional accreditation, emphasis on assessment strategies and learning outcomes accountability was appropriately far-reaching and generated extensive response across the university community. In response to this experience, the university set out to enhance aspects of the current institutional assessment plan. Administrators and faculty at BYU have worked tirelessly to establish a strategic plan for assessment that works for the institution and also complements its programs' assessment plans. While there is too much information about the specifics of BYU's strategic plan to include it all in this paper, the key principles of BYU's strategic plan for assessment include the following aspects:

Align the assessment plan to institutional mission, goals, and learning outcomes. As institutions undertake the process of developing an assessment plan, they may find themselves asking what really matters in assessment or what are purposeful, intentional assessments. Moreover, in order to achieve meaning in assessment, instruments and measures must be aligned to the claims and goals the institution makes. How can institutions make assessments more meaningful? The answer according to Suskie (2009) and Banta, Jones, and Black (2009), is found in placing value in claims institutions make, in the goals and missions they state, and in the learner outcomes they project.

Institutional goals, mission statements, and expected learning outcomes are the foundation upon which all targeted learning at the course and program levels must be based. Outcomes or goals at the program level combine with university core education goals. In other words, goals at the institution, program, and course (or activity) ought to be interconnected, complementary, and reciprocal.

The alignment of learning outcomes with program and institutional goals at BYU is pursued from a number of efforts integrated with the institutional assessment plan. First, the

alignment between the learning outcomes to stated goals is mapped and documented via the learningoutcomes.byu.edu web portal. This portal provides a common template wherein learning outcomes are recorded and authenticated by faculty. Recent enhancements to this system have included (a) incorporating the mapping of course-level learning objectives and (b) a course-level matrix mapping of courses, which are expected to contribute to a student's development in the prescribed program level and expected learning outcomes. Second, the BYU Office of Institutional Assessment and Analysis has developed a suite of BYU instruments capturing transition-point data from students as they move through their BYU experience. Each of these instruments is aligned with 24 constructs, which operationalize the stated mission and aims of the university.

Commit to and invest in assessment. Kramer et al. (2010) observed that "the research literature emphasizes the need for improvement in leading assessments by means of a strategic assessment plan to measure learner outcomes, claims, and goals and to improve student learning and programs from what is measured" (p. 44), which is supported by other researchers (Angelo, 2007; Banta & Associates, 2002; Banta et al., 2009; Bresciani, Gardner, & Hickmott, 2009; Bresciani, Zelna, & Anderson, 2004; Ewell, 2005, 2007; Maki, 2004; Schuh & Associates, 2009; Suskie, 2007, 2009; Walvoord, 2004; Wehlburg, 2008). However, Kramer et al. (2010) further state that this sounds much more simple than it actually is, as institutions are aware. Implementing and sustaining a strategic assessment plan requires commitment and a willingness to fully invest in the plan from all entities involved (see p. 29). Associated investments include expenditures of financial, human, organizational, political, and symbolic capital (e.g., elements represented in *dollars and time*). Despite the high costs of supporting an assessment plan or system at the institution, assessment is not a "money pit" sort of business. "Effective assessment can support fiscal management at a university, resulting in an increased return on precious campus resources" (see Kramer et al., 2010, p. 46).

Build a shared responsibility for the assessment plan through engaging stakeholders.

Everyone on campus should in some way or another share accountability in an institution's assessment strategy focused toward improvement. Academic units as well as educational support units (e.g., bookstore, library, housing, employment, student life) contribute to students' university experiences, their subsequent learning, and their perceived return on their educational investment.

Many faculty are well invested in the notions of learning outcomes and related assessments; however, some feel that assessment, especially the kind that satisfies external accrediting bodies or other stakeholders external to the classroom, is someone else's job. It is a significant challenge to genuinely convince faculty that their return on investment in classroom assessment is worth any extra perceived effort beyond what they are already doing. Our experience at BYU with a good number of faculty (though not all) has been that successful motivation for meaningful participation in such endeavors has been best accomplished by focusing the primary purpose around students and their learning. Generally, BYU faculty members have had a more positive demeanor towards assessment if the purpose is framed around their students and their learning than if it is framed around accreditation or other external accountabilities. Thus, one of our strategies was to focus on students and their learning. Faculty feel overworked and stressed, lacking the capacity for anything else to be added to their loads. Some honestly wonder what all the fuss is about and why giving grades isn't sufficient. Others wonder what difference it really makes anyway. The art is convincing faculty who struggle with learning assessment that well-structured and targeted assessment embedded in their pedagogy, once established seamlessly integrates everything into the status quo—and is not a painful add-on.

Use the assessment results to effect change. A commitment to the assessment of student learning requires a parallel commitment to ensuring its use. Perhaps the most difficult part of assessing student learning is the process of effecting change

in teaching and learning as a result of information gained through assessment practices. It is pointless to only "do assessment"; the results of assessment activities should come full circle to have a direct impact on teaching and learning and on the institution's strategic plan to fulfill its mission (Middle States Commission on Higher Education, 2003).

Changes in programmatic curricula as a result of assessment data do not happen automatically, as many can attest. However, if plans at the department level outline specific procedures for examining assessment results and implementing curricular revision, those changes are more likely to occur. Assessment results need to be shared and discussed by key stakeholders to develop hypotheses for resulting outcomes and recommendations for subsequent actions to be taken in the spirit of improved teaching and learning.

Consistent data repository—including direct and indirect data. Being able to adequately present evidence that expected learning outcomes have been achieved, as demonstrated by students, requires both direct and indirect evidence. Self-reported assessments of learning collected via survey research have some value, but targeted performance-based portfolios or standardized tests can take assessments to a higher level in outcome-fulfillment validation. However, indirect survey-based evidence, in some aspects, is the low-hanging fruit at many institutions as they struggle in many disciplines to produce direct performance-based evidence. Commercial standardized tests are expensive and have content limitations in the linkage to specified program goals in many disciplines and institutions. Indirect evidence of student learning can be handled for the most part at an institutional level; however, the delivery of direct evidence is dependent on the faculty at the discipline level. Developing a deepened culture of evidence takes years to establish and is an ongoing quest.

Benchmark processes with similar processes at other institutions. Benchmark comparisons that result from institutional participation in national

(external) surveys are an important part of any strategic assessment plan, as they provide context for the data. Thus, each institution should examine comparatively the content of available surveys and determine which would yield data best suited to its mission, goals, and objectives. It is important to have some outside surveys in the assessment plan to furnish external context.

Create internal formal unit review. An institutional strategic plan for assessment should include some form of ongoing internal review of campus units. Perhaps this could be considered as a form of “accreditation” and “continuous improvement”—a unit at a time (Banta et al., 2009). Unit reviews benefit from the perspective of an empirical examination over time (possibly, the most recent five years), including key indicators that help inform practice. This process applies to not only academic units but educational support units as well.

For example, in the spirit of ongoing improvement, the internal unit review process has been implemented at BYU for well over 10 years for both academic (since 1997–98) and educational support units (since 1999–2000), with many units having gone through the process two times. Both processes (academic and educational support) employ a similar framework wherein units are subject to an internal campus review every seven years. Campuswide review committees have been established for both the academic group composed of faculty and the educational support group composed of faculty and staff, all of whom serve a three-year term. The review process includes the unit’s writing of a self-study, which is utilized by the internal team as well as the external reviewer(s) in the discipline or field during the two-day site visit. Following the visit, the reports from the internal and external reviewers are shared with the units and their corresponding vice president, as review findings are utilized in subsequent planning regarding the unit. This process has helped inculcate a culture of assessment and continuous improvement at BYU, which greatly helps facilitate data-driven decision-making. Effort has been made to have units see themselves as the principal

consumer of the process—hence, they are doing it for their own benefit.

Continuously review and improve the assessment plan. Just as educational processes can continually improve, so can corresponding assessment processes. Effort should be made to improve the use of all of the information provided by assessment tools, along with the efficiency of data acquisition, analysis, and feedback into the learning process. At the same time, academic units should be continually evaluating additional assessment tools for possible adoption into their program. Assessment and continuous improvement will always be works in progress. Obviously, each department needs to develop a strategy that fits its characteristics, objectives, and needs.

Challenges and Strategies

The principles and examples of BYU’s assessment plan presented above reflect the ideal assessment plan and situation, implemented seamlessly without resistance or obstacles to thwart its progress. However, this ideal situation did not exist, and many challenges and obstacles were encountered. The most commonly encountered challenges included the following:

- Quality of learning outcomes;
- Alignment of outcomes;
- Culture of assessment disparity across campus;
- Lack of stakeholder engagement;
- Lack of collecting direct and indirect evidence; and
- Evidence of using the assessment data.

Quality of Learning Outcomes

One of the first challenges that presented itself was getting faculty and administrators to establish quality expected learner outcomes at all levels (institutional, program, course, etc.) in order to develop assessment plans that would yield results to suitably inform about student learning and meet the requirements of external and internal accountabilities. These include issues such as the need to change from a faculty-centric to a student-centric language of stated outcomes.

It also includes the difficulty in achieving faculty consensus within departments on a tight set of learning outcomes (i.e., which courses map to primary program goals).

This challenge was addressed as a lack of training or ability among faculty to write good learning outcomes at the program or course level. Program-level expected learning outcomes needed more specificity than “find a job or get accepted to graduate school.” Some of the difficulty had to do with the difference between a goal and an intended outcome, while other difficulties related to coming up with desired outcomes that are measurable—connected to specified direct or indirect evidence. There was also the temptation to stick with or over-emphasize measurable outcomes at the expense of less measurable ones.

Common mistakes made when writing expected learning outcomes included the following:

- *Lack specificity*—Outcomes provide no idea of what knowledge and skills a graduate would have after going through the program (e.g., only learning outcome is “Be prepared to enter a Ph.D. program”).
- *Written at the wrong level*—Learning outcomes are not program-based (e.g., “Be examples of life-long learning and service”). These outcomes are more personal goals than program learning outcomes.
- *Topical*—The learning outcomes are only a listing of the major program topics, not what the student will learn about them or what skills the student will develop (e.g., “[a] Facility Leadership, [b] Human and Environmental Factors, [c] Planning and Project Management”).
- *Lack measurability*—The learning outcomes listed are not measurable; they do not answer the questions of how much, for how long, etc. (e.g., “educate university students about principles of marriage, parenting, and human development”).
- *Are merely descriptive*—The learning outcomes only describe the program, instead of defining what will be accomplished by completing the program (e.g., “The Graphic

Design BFA program is a four-year curriculum designed to prepare students to succeed as working professionals in the design community”).

- *Are too generic*—The learning outcomes are too generic to provide any level of understanding to students trying to make decisions about the program (e.g., “Students can apply their knowledge to address fundamental questions in their area of study”).

Addressing Inadequate Learning Outcomes

Administrators recognized the need to assist faculty and administrators in writing learning outcomes. Specifically, they sought to assist faculty to connect their own assessment plan to those outcomes. Thus, university leadership involved the Center for Teaching and Learning (CTL) to assist faculty in this process. To further assist faculty in developing learning outcomes, the CTL developed and distributed *Guidelines for Writing and Assessing Program-Level Expected Learning Outcomes* across campus to all academic units. Related consultations were made available from trained CTL personnel (see Middle States Commission on Higher Education, 2003; Nichols & Nichols, 2000).

Leading questions also helped facilitate the process of writing learning outcomes. Examples of leading questions (that were used at BYU) to assist faculty in developing learning outcomes include the following:

1. What qualities and capabilities do you strive to foster in your students?
2. What is the most important knowledge that your students acquire from your field of study or from working with you?
3. How does your field of study or your work change the way students view themselves?
4. In what ways does your field of study or what you do contribute to a student’s well-being?
5. How does your field of study or what you do contribute to the well being of society at large?
6. How do people in this area of study differ from those in other areas (knowledge, skills, and/or values)?

7. How do we know the extent to which students are learning what we hope from our field of study?
8. How do we use information about student learning and development to enhance student learning?

Alignment of Outcomes

Compiling, documenting, and publishing the learning outcomes of hundreds of programs at a large research institution is a significant accomplishment in and of itself. However, the learning outcomes at any level (course, program, institution) need to do more than just stand by themselves. As the course threads are woven into the fabric of what a degree represents from a given program and institution, a cohesive alignment needs to be inherent as course-level outcomes to program-level outcomes to university-level outcomes. All courses should in some way contribute to the substantiation of program-level and university-level outcomes. This doesn't just all happen naturally, as faculty exercise their academic freedom to develop and teach their classes. A probable cause of this challenge may be a lack of effective communication across academic currents as often the right hand is not aware of what the left hand is doing. Effective alignment has to be done by design with collaboration among all academic levels within the university. Continued allocation of resources for existing courses with little or no alignment to program-level goals may be deemed questionable in light of strategic learning objectives. It is an ongoing challenge of a high order to facilitate the strategic roll-up and roll-down of learning outcomes at the course, program, and university levels.

A number of strategies were applied at BYU to facilitate the alignment of outcomes at the course, program, and institutional levels. These efforts have also resulted in an effective electronic publication of outcomes and the capacity to assist faculty in writing learning outcomes.

- A component of the university's institutional assessment strategy focuses on supporting program-level documentation. BYU offers

degrees in over 400 academic programs, an enormous task to ramp up and maintain. These programs are at the very heart of what matters most to the university—students acquiring the knowledge and skills to be competent in a profession or academic discipline.

- To ensure the success of these programs, it is critical that each program be adequately documented. Not coincidentally, thorough documentation and publication of that documentation are also cornerstone requirements of the accreditation process in the United States. Regional accrediting bodies (for BYU in the Northwest Region, it is the Northwest Commission on Colleges and Universities [NWCCU]) are increasingly insistent that institutions have clearly documented expected learning outcomes for each of their academic programs. Additionally, they require that each program have a legitimate assessment and evaluation strategy for measuring student achievement of outcomes. Finally, they expect that those responsible for each program will regularly use assessment data to improve academic programs.
- BYU, like most other colleges and universities, did not have a process or set of tools in place to manage program-level documentation. BYU launched a learning outcomes wiki to facilitate the convenient management and publication of program documentation (<https://learningoutcomes.byu.edu/>). Within the first year of the wiki site's activation, all programs had been documented. Since its launch, the site has received nearly one half a million views by approximately 100,000 unique visitors. The nearly 500 authorized wiki editors have made about 10,000 changes to the documentation (this number dramatically understates the actual editing activity on the wiki because logins persist indefinitely, and many editing activities occur "offline").

- All students during both the fall and winter semesters received a personalized email invitation from the President of the University inviting them to review the expected learning outcomes for their majors and provide feedback. More recently, the site has been enhanced to include the capacity to document course-level objectives and their connectivity to associated program-level outcomes.
- This web portal also facilitates a visual course-level mapping to program-level expected learning outcomes to specific classes. This enables students to more clearly understand the classes in which they are expected to acquire specific skills and knowledge pertinent to the degrees they are pursuing.

Refinement of the content being published for each of the degree programs has been the result of significant efforts of not only faculty, but students as well. The student role in the process has been extremely valuable, as students are the “consumers” of education and the reason we have universities. Students were given the opportunity to provide feedback concerning clarity and content for all degree programs. This feedback mechanism was embedded within the wiki site. Students were enthusiastic about the prospects of moving from a discussion of what classes they took to the specific outcomes resulting from their education as they considered employment or graduate school.

Culture of Assessment Disparity Across Campus

A significant challenge in engaging students in assessment was the varying depth and maturation of a culture of assessment in colleges and their respective programs across campus. An internal study of graduating students (BYU Senior Survey 2006–07 & 2007–08) conducted by the BYU Institutional Assessment and Analysis Office revealed students in colleges that have been responding to specialized accrediting bodies for years in fields such as engineering, education, and nursing were significantly more likely to be aware of the expected learning outcomes in their programs

than students in the social sciences, humanities, and other soft science disciplines (see Figure 1).

Educating the students. The BYU College of Humanities addressed this challenge by implementing an effective strategy to make students more aware of the expected learning outcomes within their majors. The college embedded within the existing university electronic teacher/course rating system a few questions specific to expected learning outcomes. This enabled students to click on a hotlink to the outcomes of their major, on the fly, to review them before responding to related questions in light of the particular course and teacher they were rating. This has enabled the College of Humanities to realize reasonable gains in student awareness of learning outcomes.

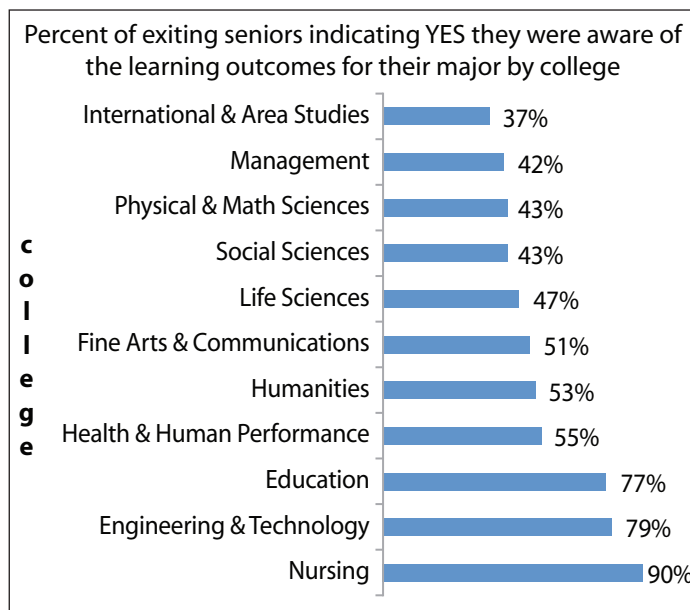


Figure 1. BYU student awareness of learning outcomes by college.

Lack of Stakeholder Engagement

Between the demands of teaching, scholarship, and university citizenship, most faculty would readily tell how their busy lives have little room for much else. They generally like to be left alone with their classes and research. As for assessment, many feel they already have it covered as they give grades

in their classes. It's easy for them to rationalize away any assessment responsibility beyond grades to their colleagues working in administrative faculty roles. They hope that regional and specialized accreditation demands won't intrude too much on their worlds—that someone else will take care of it. They especially are reluctant to expend any inordinate amount of energy that doesn't seem to contribute to their progression in the rank and tenure process or in furthering their research agendas, especially without any extra compensation. The principal reason we have institutions of higher education is for the students and their learning, and since faculty are the front line crusaders in this effort, it is critical they are engaged in the assessment process. Faculty members not only need to be aware of how their classes contribute to program-level and university-level intended outcomes, but need to be invested in and accountable to the process. It's really up to them to facilitate the collection of appropriate evidence of their students' learning.

Engaging the stakeholders. A number of strategies emerged that proved successful in engaging stakeholders in the assessment plan.

- For the most part, a strategy was implemented wherein existing campus committees, councils, and infrastructure (Dean's Council, Associate Academic Vice President Council, President's Council, Curriculum Council, etc.) were utilized to make assessment part of the status quo faculty and employee job—in short, the normal flow of things and not something new or additional, to the degree possible. The process was kicked off with high-level support from the university President at a regularly scheduled annual leadership retreat. This included some unrehearsed dialogue around learning outcomes awareness and fulfillment with students and the deans of the colleges of their majors. Academic vice presidents, associate deans, department chairs, faculty, administrators, and students comprised the university task force that was established.
- Rich discussions within existing academic faculty councils resulted in many faculty-driven initiatives. For example, the university curriculum council enhanced the process for adding a new program at the university to require the inclusion of stated "Expected Learning Outcomes."
- Additionally, faculty councils initiated and implemented a cross-college peer review of the quality of expected learning outcomes statements. Many departments held focus groups with their students to refine their learning outcomes statements with an eye to making them understandable and useful to students.
- Students on the institutional expected learning outcomes task force were commissioned to create a video (available at www.learningoutcomes.byu.edu) to help promote awareness and understanding of learning outcomes among students throughout the university. They created an effective product in just a few months. The video is available for all units across campus as a tool to inform students of the benefits of understanding what their respective programs expect them to learn and be able to do when they graduate. The video also illustrates the utility for open (or undeclared) major students in selecting a major program that aligns their interests with the expected learning outcomes. The video vividly profiles actual students with the faculty in their majors, with commentary from the college deans. This video was recently shared at a national assessment in higher education summit.
- As all departments met the deadline to populate the learning outcomes wiki site, all students received a personalized email from the university President to visit learningoutcomes.byu.edu.
- Expected learning outcomes across campus were not only published electronically on the learningoutcomes.byu.edu wiki site, but also were posted as hard copies in campus

areas highly frequented by students, such as advisement centers, and program, department and college offices. Publishing the expected learning outcomes on campus, especially in hard copy form, resulted in added attention from faculty. This not only resulted in faculty coming to agreement as to the key expected learning outcomes for each program, but also improved the quality of the statements. It seems that there is no better form of faculty motivation than public scrutiny.

- Students were involved in this process as well; in addition, the student advisory council took the lead in distributing the hard copies and in explaining their potential utility to students across campus. Students reported that many were excited to have a clearer high-level understanding of the target goals for the many degrees offered across campus.

Lack of Collecting Direct and Indirect Evidence

It is a significant challenge to provide evidence of student learning especially across the breadth and depth of numerous degree programs at an institution. There are many ways to assess learning outcomes for students. The characteristics of good evidence include (a) both direct and indirect methods for gathering data and (b) the appropriate use of quantitative and qualitative data. Many rely mostly on indirect evidence, which can be more readily obtained; however, good strategic plans for assessment include the systematic collection and utilization of direct evidence. It is also good to understand the fundamental concepts of formative assessment, summative assessment, and benchmarking. Convergence from multiple sources and types of data is important in substantiating whether or not expected learning outcomes have been realized (Middle States Commission on Higher Education, 2003).

The concepts of *direct* and *indirect* methods of evaluating student learning are often confused with each other and with *quantitative* and *qualitative* forms of information. Each has its merits and drawbacks.

Direct evidence demonstrates actual learning, performance-based work that is reflected in an evaluation of something the student has actually done or produced (e.g., homework, tests, papers, standardized tests, performances, products).

Indirect evidence is non-performance-based data that reveal characteristics associated with learning, but only imply that learning has occurred (e.g., self-report survey data, senior survey data, alumni questionnaire data, job placement rates, satisfaction rates).

Examples of direct and indirect measures of student learning at the program level are presented in Figure 2.

Direct (Primary) Measures	Indirect (Secondary) Measures
<ul style="list-style-type: none"> • Capstone projects, senior theses, exhibits, or performances • Pass rates or scores on licensure, certification, or subject area tests (Educational Testing Services) • Student publications or conference presentations • Employer and internship supervisor rating or students' performance • GRE scores of students completing the program • Performance-based skills competency exams • Portfolios mapped to intended outcomes with embedded rubric (criterion-based rating scale) ratings 	<ul style="list-style-type: none"> • BYU Alumni questionnaire data • BYU Senior survey data • National Survey of Student Engagement (NSSE) data • Employer surveys (non-supervisor) • Graduate school placement rates • Departmental exit interviews • Portfolios with no performance-based linkage to intended outcomes • Focus group interviews with students, faculty, employers, etc.

Figure 2. Direct and indirect measures used at BYU.

Institutional strategies should be developed and put into action that results in the appropriate collection of direct and indirect evidence. A number of questions should be considered: How will each learning outcome be assessed? What evidence of student learning is most relevant for each learning outcome? What criteria will be used to evaluate this evidence? What constitutes student performance at exceptional, acceptable, and unacceptable levels?

An effective strategy should include the systematic and routine collection, storage, analyses, and utilization of evidence pertaining to each stated learning outcome. Such data could be collected via embedded classroom assessments or institutionally driven assessment initiatives. It should use multiple kinds of assessments for each learning outcome, including direct outcomes, such as outcome-related course assignments, exams, and capstone course projects, as well as indirect outcomes, such as employer, alumni and senior surveys (Association of American Colleges and Universities, 2004; Middle States Commission on Higher Education, 2003; Miller & Leskes, 2005). For example, new functionality in the university's online student ratings system allows colleges and departments to add custom questions to the standard evaluation form. Additionally, questions about learning outcomes have been integrated into the university senior exit survey administered annually to all students receiving undergraduate degrees. Resulting data are shared annually at all academic levels. Academic departments and programs also have latitude to add custom questions to annual alumni and senior exit surveys that, if desired, could connect specifically to the department's or program's expected learning outcomes.

Evidence of Using the Assessment Data

Using assessment results is important as units move to close the loop and experience (hopefully) a positive return on their investment as they seek to improve. Notwithstanding, this is and continues to be the biggest and most significant challenge within the assessment arena at virtually all institutions of higher education. It speaks to the return on investment in assessment, and university stakeholders rotate around the assessment loop in response to the questions of "What difference does all this assessment make?" and "Is it worth it?" It behooves all institutions to have an effective connection between their assessment and planning processes (Middaugh, 2009). Ultimately, better planning decisions are made when corresponding assessment data are utilized. Although most regional accrediting bodies, to some degree, ask

universities to provide evidence that assessment is making a difference and, in fact, assessment loops are being closed, many institutions struggle to deliver such evidence. All such evidence should point to increased learning among students.

Institutions need to determine what makes most sense in their culture and environment in establishing a framework for documenting the use of assessment data. Setting an appropriate campus tone as to expectations and frameworks for such accountability is critical if this is to be accomplished. A number of strategies could be applied to provide a means to systematically collect and utilize such data, and these are outlined below.

- Have high-level university leadership endorse and promote the expectation for units to document their utilization of assessment data.
- Embed an accountability framework with the self-study guidelines for internal unit review with the university.
- Create documentation channels with the resource planning or allocation processes within the university.
- Develop other data collection processes to systematically obtain evidence of assessment data usage across campus.
- Take advantage of any existing accountability channels on campus that would facilitate documenting closing the loop such as annual faculty stewardship interviews.

BYU has made strides in this area, but ongoing improvement in documenting "closing the loop" is continually sought. This applies to not only academic units but educational support units as well. One college at BYU utilized the results of the university annually administered survey to alumni (three years post-degree) to enhance the learning for their students. Resulting data showed their alumni to be lower than most BYU graduates in the constructs of "quantitative reasoning" and "uses technology effectively." Upon sharing some of these data with their National Advisory Council and further discussions, they decided to initiate efforts in their college to enhance student learning and development in these areas. Another educational support unit at BYU, the Student Health Center, was

able to greatly enhance the health benefits for all students based on findings from a student survey. Upon learning that students not only wanted but were willing to pay for additional dental and vision benefits, potential options were explored, and this exploration ultimately led to benefits being added without any additional cost to students—triggered by the survey’s indirect evidence.

Collegewide Application of an Assessment Plan

An example of using the principles of strategic planning discussed above is found in The David O. McKay School of Education (McKay School), whose teacher education programs involve 8 colleges and 24 departments on the BYU campus, and comprises nearly 6,000 students of the institution’s total enrollment that surpasses 30,000. The assessment system discussed in this section applies to the following departments: Special Education, Elementary Education, Secondary Education, and Early Childhood Education. This section will focus on an assessment plan from a collegewide and individual program perspective; more specifically, it will discuss purposeful assessments, analysis, and reporting as related to expected learning outcome of the School of Education and its departments.

The primary purpose of any assessment plan among academic disciplines is to establish evidence of learning outcomes or program validity. To achieve this end in the McKay School, the following six critical and integrated principles underlie this college’s system approach to assessment, analysis and reporting:

1. Align claims or the conceptual framework of the academic program with assessment measures.
2. Establish a master calendar that is agreed upon by all stakeholders. The master calendar should clearly state when assessments are administered, results are analyzed and reported, and responses to reports are due during the academic year.
3. Establish a database and website to provide accessible assessment data and reports for stakeholders. The website provides access to

the database, which contains all of the core assessment data from the teacher education programs. The website also provides access to completed reports of assessment data.

4. Tell the data story in a timely, consistent way. The data analysis and reporting follow each reporting cycle and provide feedback to the faculty and program leaders, especially on considerations to make program improvements.
5. Create a culture of evidence and learning partnerships by engaging stakeholders not only as owners in the establishment who use the master calendar, but more importantly as owners of the assessment, analysis, and reporting system.
6. Include a way for faculty and program leaders to respond to or demonstrate how the data are being used for program changes and improvements. This not only affirms a culture of evidence, but also can lead to program validity and improvements. In other words, if we don’t tell the data story and encourage accountability to use and interpret the results, how do we know that program aims and student learner outcomes have been achieved?

Following is a more in-depth discussion of these critical factors of an assessment plan as used in the McKay School.

Alignment of Assessment Instruments to Programs’ Conceptual Framework and Outcomes

The teacher education programs of the McKay School spent a considerable amount of time developing their conceptual framework. This conceptual framework unifies the institution’s aims and mission, the aims and mission of the School of Education, and important aspects of the teacher education program as found in the learning outcomes (<http://education.byu.edu/epp/framework.html>). Assessment measures used in the teacher education program have been designed to align the program’s conceptual framework. These instruments are used at a variety of points

throughout the students' training in the program such as, to determine student admissibility (admissions) to the teacher education program, to assess achievement of learner outcomes and student readiness during the pre-clinical practice (practicum), and to record effectiveness of performance during the student teaching (clinical) experience. Surveys have also been developed to ask seniors and alumni to evaluate their teacher education program. As well, employers are also asked to evaluate McKay School teacher education graduates regarding their preparation and performance as full-time teachers.

The primary core assessment measures in the teacher education programs are designed to measure different traits, dispositions, and skills. Two of the measures are designed to assess dispositions, and both are administered during the admissions process and the clinical experience. Another measure is designed to assess performance during the pre-clinical and clinical student teaching experience; it is based on the Interstate New Teacher Assessment and Support Consortium (INTASC) standards. The INTASC Standards are

model standards of values and traits of good teaching and have been developed by the Council of Chief State School Officers (CCSSO) to help create consensus on good teaching practices (http://www.ccsso.org/Projects/interstate_new_teacher_assessment_and_support_consortium/780.cfm#resource). The INTASC Standards play an important part in the Teacher Education's conceptual framework. The final assessment measure is students' capstone project and is completed during the clinical experience; it is graded using a specific rubric designed for that purpose.

The Assessment, Analysis, and Reporting Master Calendar

The master calendar is the core of the School of Education assessment plan. In the calendar, there is an emphasis by date on the (a) chronological set-up and identification of the instruments to be used; (b) dates on which the scores are to be recorded; (c) dates when the recording of data is to take place; (d) analysis and reporting period; and (e) department or program response to data (see Figure 3).

ASSESSMENTS MASTER CALENDAR
Department

[illegible]

SEMESTER REPORTS	Date
ANNUAL INTEGRATED AND COMPREHENSIVE REPORT	Date
Individual Program and Department Reports	Date

Figure 3. BYU assessments master calendar.

The calendar was developed through consulting the governing committee of the teacher education programs. This helped create a sense of ownership among the committee and, thereby, department faculty. Naturally, the implementation of this calendar has not been seamless, and creating buy-in among stakeholders has been a difficult process and one that requires constant vigilance. However, prior to the use of the calendar, data would gradually trickle in each semester, or would not be turned in at all. There are still the perennial stragglers in submitting their data each semester, but the process has improved markedly and has enabled more accurate and timely reporting of the assessment data. The calendar represents agreement on timelines among program faculty to keep the assessment plan moving forward.

Accessible Data via a Website and Database

Previous to the development of a database and website, the teacher education program's assessment data was stored in multiple files and locations. Accessing data, let alone analyzing the

data, was nearly impossible for stakeholders. To address this issue of inaccessible data, a database was developed to house the information in an organized, usable format. In addition, a website was created to allow online access to the database as well as to all reports and the master calendar. The idea was to have the data, reports, and master calendar accessible in the same location to reduce the number of places stakeholders had to go to get the information they needed. Through prior experience of trying to disseminate raw data and reports, it was found that if access to this information required stakeholders to go to multiple locations or required several steps to get them there, they were much less likely to use the information because of the extra time and effort just to find it. As a result, the raw data was placed in a database and the reports were put online through an assessment website. The graphic in Figure 4 displays the website access to both the reports and database from one location, and Figure 5 shows the report database and the database that stores the raw data. In the report database, stakeholders

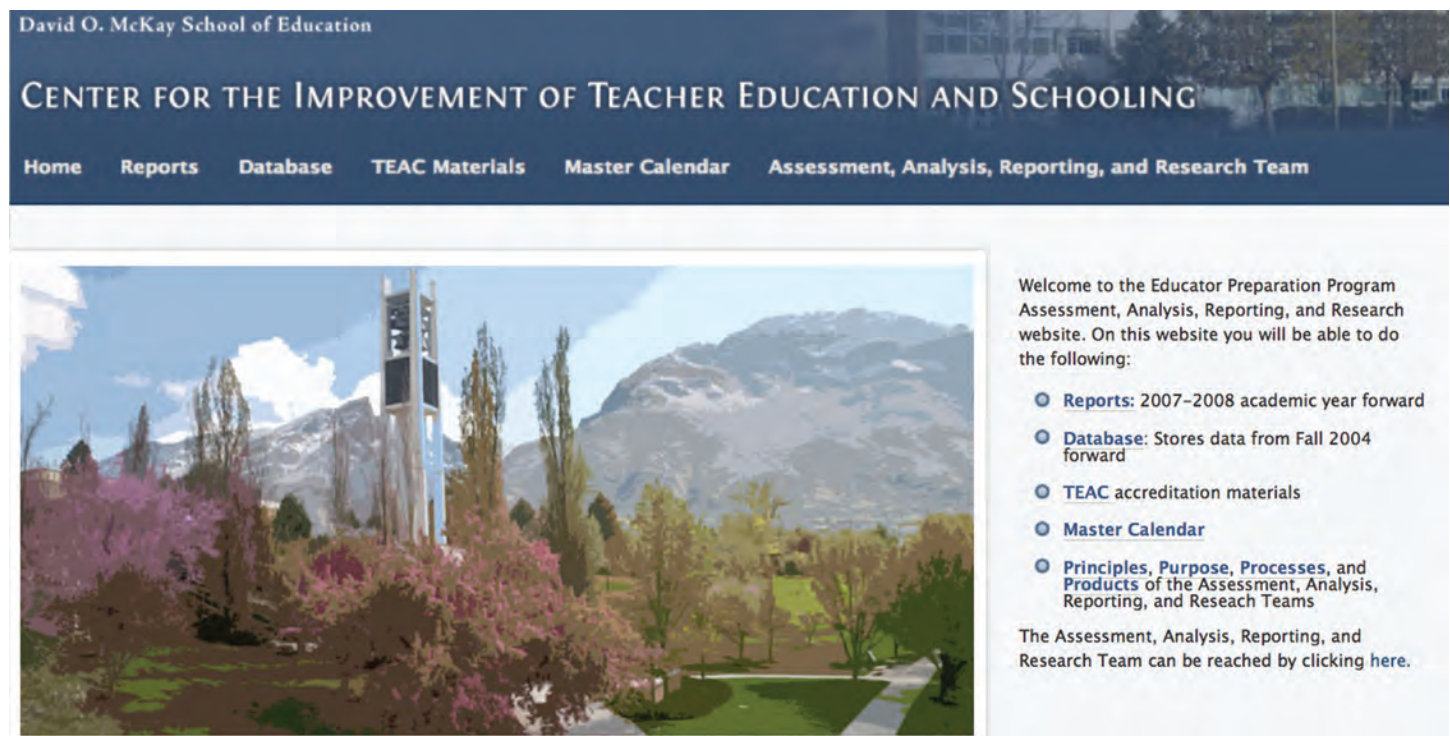


Figure 4. The McKay School's assessment website and database.

Report database on the website

Search Database by

Any Academic Year ▾

Any Semester ▾

Any Program ▾

Show Reports

The following reports were found for your particular query:

- * 4 Annual Reports for Academic years 20XX, 20XX, 20XX and 20XX
- * 2 Semesters Reports for Winter 20XX and Fall 20XX
- * 3 Retention Reports for academic years 20XX, 20XX and 20XX
- * 1 Graduation Report for Academic year 20XX

Database accessed through website

Query Students by

Student ID

Last

First

Year	Semester	Course	Instructor	Program	Cumulative GPA	Major GPA	Graduation Date
<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>

Figure 5. The McKay School's assessment report database.

have the option of searching by year, semester, and program. In the other database (that contains raw data), stakeholders have many more criteria available for searches, as shown in the lower section of Figure 5.

The database where raw data are stored also enables stakeholders to query and export the data for their specific needs. Access to data and reports means that stakeholders can readily obtain information regarding program strengths and weaknesses, along with general trends in assessment scores. Both the database and website have been very well received by stakeholders.

Whether access to the data is enabled through a database, website, or other data management system, making data readily available to stakeholders (or telling the data story) is a key component to an assessment plan.

Data Analysis and Reporting

Reporting tells the data story, and assessment results must be communicated usefully, clearly,

and accurately. Large, cumbersome reports filled with too much data, even if it is good data, are rarely read or used. In order to avoid creating any additional reports that might fall into this classification, assessment administrators sat down with faculty and program leadership to obtain their feedback regarding what kinds of reports would be most helpful to them to make informed decisions about program improvements. Through engaging stakeholders, assessment administrators were able to develop analysis templates for the semester and annual reporting. In addition to developing templates that satisfy needs for reporting program progress, they were also able to incorporate data to meet accreditation-reporting needs, thereby fulfilling two needs in one report. Figure 6 is an example of one of the semester-reporting templates that was developed as a result of engaging stakeholders about their reporting needs. As mentioned in the previous section, stakeholders are able to access these reports online for their specific department and/or college.

Instrument - Final Report										
Department										
Date										
Instructor	Evaluator	Course	Enrolled	Recorded	%Recorded	Max	Min	Evaluation	M	SD
			423	420	99%	5.00	1.00	Item 1	4.45	0.61
								Item 2	4.31	0.69
								Item 3	3.92	0.74
								Item 4	4.33	0.67
								Item 5	4.23	0.77
								Item 6	4.29	0.69
								Item 7	4.42	0.66
								Item 8	4.09	0.70
								Item 9	4.67	0.55
								Item 10	4.55	0.63
								Overall	4.33	0.70

Figure 6. Report template example.

Lessons Learned and Future Strategies

Certainly, there is no universal remedy in meeting the challenges of establishing an assessment plan. Our intent, however, in this article was to share a working model of a systematic approach to creating and establishing a meaningful assessment culture, as well a successful assessment plan (i.e., doing assessments that really matter and make a difference). While there will always be institutional constraints, the campus commitment and will to see students as first in setting and meeting educational aims should be unrestrained. The need to know students' needs, expectations, and success with learning outcomes and the importance of caring about their achieving success in the teacher education program are more cultural than resources-related.

Without ongoing learner outcomes assessment or continuous monitoring of student progress, the likelihood of both knowing and obtaining student—and, thereby, program—success is fragile.

Yet student success, the optimal experience on the campus, is everyone's business. Via a systems approach to assessment, analysis, and reporting, student success is something we make happen.

Essentially, the primary lessons learned from the institutional assessment and analysis plan presented in this paper are threefold:

- While our current campuswide assessments and analysis is a work in progress, it requires both patience and constant vigilance to obtain consistency in assessments and to communicate their meaningfulness to stakeholders;
- Celebration of successes, when obtained, is important; yet, at the same time, it is essential to recognize where adjustments in the assessment processes need to be made. Refinements to the system, we have learned, ought to be done by listening to stakeholders and then thoughtfully outlining next steps to improve the assessment plan,

- And perhaps most importantly, we have learned that effective assessment really touches and is dependent in some way upon, everyone on campus—the students, faculty, and staff. A culture of assessment doesn't happen overnight at the flick of a switch. It doesn't usually just evolve by itself either. It takes planning, leadership, resources, and effort. The experiences that individuals have had personally or vicariously within their campus environment ultimately shape their beliefs about varying issues or movements and subsequently impact their actions and the potential results of any initiative. Thus, an effective means to transition a campus to an enhanced culture of evidence is to provide new opportunities that allow campus constituents to have meaningful experiences with data, assessment, and the like, and to genuinely feel they made a positive difference.

At the end of the day, we've also learned that assessment is a mechanism for promoting and managing ongoing change and improvement in the organization. It is an essential function of the higher education, and specifically the BYU, learning enterprise. While it has not been an easy path or a yellow brick road of implementation, we've come to appreciate and value (a) assessments that really matter and make a difference in student learning; (b) purposeful or intentional assessments that respond effectively to a variety of external and internal forces; and (c) assessments—using data to improve programs and student learning and success—as a mechanism of change that must directly involve stakeholders. These paths we will continue to pursue.

Other factors, we've learned and attempted to incorporate, of an assessment culture are involved with the following:

- Creating learning partnerships in the assessment of student development, growth, and success factors;
- Aligning conceptual frameworks with the claims of higher education programs and the assessments/evidence that support them;
- Engaging faculty and students in the assessment process;

- Using technology (including electronic portfolios) to assist the monitoring and tracking of student development and success;
- Accounting for and addressing matters of diversity, including diverse learners;
- Using research lenses to assemble the assessment puzzle—who students are (internal and external conditions and characteristics), what students do (engagement), and what institutions do (policies, procedures, structures, processes);
- Developing assessment models that lead to program improvement and student growth; and
- Bridging assessment, learning outcomes and accreditation—a systems approach (see Angelo, 2002, 2007; Astin, 1992; Ewell, 2007; Hollowell, Middaugh, & Sibolski, 2008; Pet-Armacost & Armacost, 2008; Suskie, 2007; Volkwein, 2008)

Essentially, what do good programs do to achieve an assessment culture? What really matters in higher education assessments? What are the common assessment ingredients found among successful programs? What does the research suggest as next steps that higher education programs should consider in promoting qualitative assessments of the teaching-learning process? McDonald (2002) attributes the concept of a campus community to Ernest Boyer, a highly respected and influential higher education scholar. Over his career, Boyer, former President of The Carnegie Foundation for the Advancement of Teaching, consistently advocated that all parts of campus life—from the recruitment of students to teaching—contribute to students' sense of "wholeness." He advocated that the "true calling" for higher education is to create a community that includes everyone on the campus and to foster the success and dignity of each person. In this context, then, what matters in assessment and to student success is a student-centered assessment culture. Bailey (2006) suggests the following:

- Most students benefit from early interventions and sustained attention at various transition points in their educational journey.

- Students who make worthwhile connections with something or someone in the postsecondary environment are more likely to engage in educationally purposeful activities during college, to persist, and to achieve their educational objectives.
- Institutions that focus on student success and create a student-centered culture are better positioned to help their students attain and achieve their educational objectives.
- Because we value what we measure, institutions should focus assessment and accountability efforts on what matters to student success—institutional effectiveness and student success will not improve without valid, reliable information to guide change efforts and monitor performance.

If higher education leaders are serious about promoting an assessment culture that is sensitive to student and program needs and dedicated to improvement, they will strive to align student and program expectations, enrich students' development through viable learning opportunities, and monitor student and program achievement of goals through assessment of learning outcomes.

In conclusion, it was our intent to demonstrate that intentional assessments in higher education ought to guide strategic planning, analyze cost effectiveness, assist in accreditation, measure student learning outcomes, and guide decisions, policies, and practices. As pointed out by Schuh, 2007, Kuh, Kinzie, Schuh, and Whitt (2005), and again by Kinzie and Kuh (2007), many institutions have created a culture in which data-driven decisions lead to continuous improvement. These institutions, they point out, rely on systematic information to make good decisions. Moreover, in their research project *Documenting Effective Educational Practices*, the institutions studied routinely collected data and made decisions about beginning, ending, or modifying programs based on evidence. Many institutions that have developed an assessment culture have done so, in part, due to accrediting agencies' insistence that higher education programs use data to demonstrate that students are learning and are achieving the claims

of the program. Specifically, assessment is essential for both external and internal reasons. Assessment is especially effective when it measures student learning, success, and program effectiveness. Just as important, however, is the use of assessment data to drive program decisions that improve student learning and success.

A premise of this paper is that all components of the higher education community, especially the college and department community, are part of the student learning enterprise; that each is dedicated to student learning, growth, success; and that this is the business of everyone in the campus community. Specifically, effective assessment is about building a culture that anticipates the needs of students who are entering the system and is concerned with their progress in it.

Editor's Note:

Building a knowledge base would seem to involve three key aspects: a motivated community of learners with a memory function, a set of conceptual models that neither have to either agree with each other nor have to cover the entire domain of knowing, and experiences or data that pertain to the knowing. Assessment of academic programs has become one of higher education's more prominent knowledge bases. Knowing about knowing has multiple groups of motivated communities. First are those directly involved in the academic program, the students and the instructors. Next, there are those who manage the cluster of programs in a shared process of administration, management, and governance with overlapping membership of individuals in the various roles such as Deans, Department Chairs, Promotion and Tenure Committees, and core administrative processes. Finally, there are the external regulators from accreditation to legislative to the public.

The conceptual models include the technical discussions on how people learn, the role of active engaged learning, best practices of teaching,

discipline paradigms, and management insights from books such as *Competing on Analytics*, *Good to Great*, and *The Fifth Discipline*.

The data, however, most frequently come from specific case studies, which continually balance internal validity for interpretation and external validity for generalization.

In this article, Kramer, Hanson, and Olsen present us with all of the key components of a learning community and, in doing so, they produce a case study that can serve as data to sustain continued learning about assessment. Your role, as a member of the learning community, is to consider how much it explains the key aspects in your institution and what parts of it generalize to your situation.

The discussion looks at assessment primarily through the lenses of faculty in their governance role and the university in its administrative support role. Of course, it also refers to the external force of accreditation. How did BYU balance and leverage these groups that sometimes have competing goals? Would those strategies work at your institution?

The conceptual models often relied on grounded theory and had a variance across programs. There were some management decisions that represent best practices in implementing change. There was extensive involvement of faculty. There was flexibility to adapt to unique needs. These decisions also represented best practices in learning. Feedback was built into the system as an

integral part. Data were made available, and uses were documented. What else is consistent with what we know about change? For example, how involved were BYU senior administrators, and how does this compare to your institution?

The factors above are some of the aspects that make this study valuable as a description of how to implement change. There are also a couple of aspects that make it a very valuable part of a roadmap to sustainable assessment. The first aspect is that it discusses some of the challenges and what was done to deal with them. Note that they don't claim to have solved all of the challenges as several times the phrase "constant vigilance" is used. Some of these challenges are inherent in the academy, and some of them are a function of BYU's context. Which of these challenges exist at your institution, and what are the differences based on context and characteristics?

The second aspect is the discussion of "lessons learned and future strategies." Here is a template but does it apply to your situation? For example, do you celebrate successes? Finally, while these again remind us of "best practices" with concepts of patience and persistence, integrated involvement of community members, and the use of technology to enable and facilitate the process, they remind us that "quality assessment is a journey." Thanks to this description by our colleagues of their journey at BYU, the path will most likely be clearer for others of us on the same journey.

References

- Angelo, T. A. (2002, January). *Developing the scholarship of assessment: Guidelines and pathways*. Paper presented at American Association of Higher Education Conference, Phoenix, AZ.
- Angelo, T. A. (2007, November). *Can we fatten a hog just by weighing it? Using program review to improve course design, teaching effectiveness, and learning outcomes*. Workshop presented at the 2007 Assessment Institute, Indianapolis, IN.
- Angelo, T. A. (2007). *Doing assessments as if learning matters most*. Wellington, New Zealand: Victoria University of Wellington & Association of American Colleges and Universities.
- Association of American Colleges and Universities. (2004). *Taking responsibility for the quality of the baccalaureate degree*. Washington, DC: Author.
- Astin, A. (1992, January). *Principles of good practice for assessing student learning*. Paper presented at the American Association of Higher Education Conference, Phoenix, AZ.
- Bailey, T. R. (2006, November). *Research on institution level practice for postsecondary student success*. Paper presented at the National Symposium on Postsecondary Student Success, Washington, DC.
- Banta, T. W., & Associates. (2002). *Building a scholarship of assessment*. San Francisco: Jossey-Bass.
- Banta, T. W., Jones, E. A., & Black, K. E. (2009). *Designing effective assessment: Principles and profiles of good practice*. San Francisco: Jossey-Bass.
- Bresciani, M. J., Gardner, M. M., & Hickmott, J. (2009). *Demonstrating student success: A practical guide to outcomes-based assessment of learning and development in student affairs*. Herndon, VA: Stylus Publishing, LLC.
- Bresciani, M. J., Zelna, C. L., & Anderson, J. A. (2004). *Assessing student learning and development: A handbook for practitioners*. Waldorf, MD: National Association of Student Personnel Administrators.
- Ewell, P. T. (2005). Power in numbers: The values in our metrics. *Change*, 37, 10–16.
- Ewell, P. T. (2007, November). *Assessing assessment: Successes, failures, and the future*. Paper presented at the Assessment Institute of IUPUI, Indianapolis, IN.
- Hollowell, D., Middaugh, M. F., & Sibolski, E. (2008, May). *Integrating higher education planning and assessment: A practical guide*. Paper presented at the 48th AIR Forum, Seattle, WA.
- Kinzie, J., & Kuh, G. (2007). Creating a student-centered culture. In G. L. Kramer (Ed.), *Fostering student success in the campus community*. San Francisco: Jossey-Bass.
- Kramer, G. L., Hanson, C. M., & Olsen, D. (2010). Assessment frameworks that can make a difference in achieving institutional claims. In G. L. Kramer & R. L. Swing (Eds.), *Higher education assessments: Leadership matters*. Washington DC: American Council in Education.
- Kuh, G. D., Kinzie, J., Schuh, J., & Whitt, E. (2005). *Assessing conditions to enhance educational effectiveness: The inventory for student engagement and success*. San Francisco: Jossey-Bass.
- Maki, P. (2004). *Assessing for learning: Building a sustainable commitment across the institution*. Herndon, VA: Stylus Publishing, LLC.
- McDonald, W. M. (Ed.). (2002). *Creating campus community: In search of Ernest Boyer's legacy*. San Francisco: Jossey-Bass.
- Middaugh, M. F. (2009). Closing the loop: Linking planning and assessment, planning for higher education. *Planning for Higher Education*, 37(3), 5–14.
- Middle States Commission on Higher Education. (2003). *Student learning assessment: Options and resources*. Philadelphia: Author.
- Miller, R., & Leskes, A. (2005). *Levels of assessment from the student to the institution*. Washington, DC: Association of American Colleges and Universities.
- Nichols, J., & Nichols, K. (2000). *The departmental guide and record book for student outcomes assessment and institutional effectiveness*. Edison, NJ: Agathon Press.

- Pet-Armacost, J., & Armacost, R. L. (2008, May). *Adapting a systems approach to meet new program assessment challenges*. Pre-conference workshop presented at the 48th AIR Forum, Seattle, WA.
- Schuh, J. H. (2007). Changing student services through assessment. In G. L. Kramer (Ed.), *Fostering student success in the campus community*. San Francisco: Jossey-Bass.
- Schuh, J. H., & Associates (Eds.). (2009). *Assessment methods for student affairs*. San Francisco: Jossey-Bass.
- Suskie, L. (2007, January). *Understanding and using assessment results*. Presentation at the semi-annual meeting of the BYU-Public School Partnership Leaders Associates, Provo, UT.
- Suskie, L. (2009). *Assessing student learning: A common sense guide*. San Francisco: Jossey-Bass.
- Volkwein, J. F. (2008, May). *Strategies and instruments for assessing student learning in the major*. Presentation at the 48th AIR-NEAIR Workshop, Penn State, University Park, PA.
- Walvoord, B. E. F. (2004). *Assessment clear and simple: A practical guide for institutions, departments, and general education*. San Francisco: Jossey-Bass.
- Wehlburg, C. M. (2008). *Promoting integrated and transformative assessment: A deeper focus on student learning*. San Francisco: Jossey-Bass.



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